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BioL 4905: Endocrinology Lab – Dr. Edmund Rogers

Rate of Cortisol Decay in Convict Cichlids:

"Water Hormone Collection Baseline and Effect of Sex & Subspecies on Rate"

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Abstract:

The convict cichlid, a freshwater fish native to Central and South America, lives under a high-stress environment due to pressures from extensive predation resulting in low reproductive success. Convict cichlids are models for complex pair bond social behavior, and are unique in that they are one of the only aquatic vertebrae to display this trait (Wisenden, 1994). In order to understand how stress affects these animals, it is important to ascertain their endocrine response to a standard stressor. In this study, our goal was to effectively define the decay rate of cortisol and the magnitude of response to a standard stressor in fish (air exposure) for three common subspecies: *Amatitlania nigrofasciata, Amatitlania siquia, Amatitlania kanna.* The cortisol decay rate was obtained by subjecting individuals to two minutes of air exposure followed by isolation in four subsequent 30-minute hormonal collection apparatuses. The overall water based cortisol levels were then obtained using Cortisol EIA kits (Rodgers, 2006). The results of this study found that there was an approximate linear relationship between cortisol secretion and time in collection apparatus. Furthermore, it found that there is no distinguishable difference in a focal subject's cortisol secretion when examining the subspecies (Gabor, 2012). We concluded that cortisol levels return to baseline approximately 120 minutes after the introduction of the air stressor, and that this decay rate is consistent across all three subspecies.